REMARKS/ARGUMENTS

Claims 1-8, 10-18, 20-28, and 30-35 are pending in the application and stand rejected. Claims 31 and 32 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by U.S. Patent No. 6,396,834 to Bonomi et al. (hereinafter "Bonomi"). Claims 1-8, 11-18, 21-28, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonomi in view of U.S. Patent No. 5,561,663 to Klausmeier. Claims 10, 20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonomi and Klausmeier in further view of U.S. Patent No. 6,049,526 to Radhakrishanan et al. (hereinafter "Radhakrishanan"). Claims 1, 11, and 21 are amended according to the specification. Support for the claim amendments can be found, among other places, at pages 26-27 of the application. No new matter has been added.

Rejections under section 102

Claim 31 recites a method of performing a virtual network connection merge comprising "assigning a relative frequency value to each network connection in a plurality of network connections being represented in a first list; assigning a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion, a ready network connection being a connection ready to send a data unit; when a ready network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list." Applicants respectfully submit that Bonomi does not disclose at least this credit-based bandwidth allocation system.

Bonomi discusses an ATM switch with a scheduler. The scheduler uses buckets generated at regular intervals to define cell departure times. A bucket is selected for a given cell either by calculating a conformance time or by using a "bucket gap" associated with its connection. See, Bonomi at col. 12, lines 38-44 and col. 15, lines 22-27.

Unlike the present invention, Bonomi's scheduler does not use credits. Instead, Bonomi teaches that a cell is transmitted when its assigned bucket becomes the current system bucket. See, Bonomi at col. 4, lines 6-9. Thus, Bonomi does not disclose that connections in a first list are assigned credits in a round-robin fashion, that connections are removed from the first

list when at least a certain amount of credit has accumulated, or that a data unit is chosen for transmission from a connection based upon its credits.

The Examiner points to Bonomi at column 12, lines 5-9 as disclosing "assigning a credit to each ready network connection in the first list in a round robin sequential fashion." See, Office Action at page 3. Applicants respectfully submit that Bonomi does not mention credits at all in the cited passage. In the cited passage, Bonomi is simply indicating that cells are interleaved in transmission and that they are selected from groups on a proportional basis. See, Bonomi at col. 12, lines 13-16. There is no mention that bandwidth is allocated through the use of credits, much less that credits are assigned to individual connections in a round-robin sequential fashion.

In addition, Bonomi does not disclose that network connections are represented in a first list. It is not clear exactly which part of Bonomi the Examiner is using as the "first list" in the claim rejection. From the context above, the Examiner apparently intends for one of Bonomi's groups 310, 320, 330 to serve as the "first list" of the claim. However, Bonomi does not disclose removing connections from groups 310, 320, 330 and therefore these groups cannot serve as the "first list" recited in the claim.

Bonomi similarly fails to disclose "when a ready network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list." Here, the Examiner mentions column 10, lines 26-31 and column 11, lines 28-32 in support of the claim rejection. See, Office Action at page 4. At column 10, Bonomi indicates that memory manager 450 keeps track of free memory using a linked list. This cannot be the "first list" of the claimed invention as the "first list" represents network connections, not free memory. At column 11, Bonomi indicates that multiple cells may be placed into a single bucket and arranged in FIFO order. However, this passage also fails to teach the "first list" since, among other things, Bonomi does not disclose assigning relative frequency values to cells that have already been placed into a bucket.

Lastly, Bonomi does not disclose "continuing to assign a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty." The Examiner states that repeating previous steps

does not make the invention novel. See, Office Action at page 4. However, Applicants note respectfully that this limitation does not just repeat steps, but repeats steps until a condition arises (i.e., the first list is empty). Thus, Bonomi must supply this limitation in order to anticipate the claimed invention. As previously discussed, Bonomi does not disclose that credits are assigned to connections and therefore does not disclose that credits are assigned until a condition arises. For at least these reasons, Applicants submit that Bonomi does not disclose either the use of credits or a "first list" as these limitations are recited above.

Claim 32 depends from claim 31 and incorporates all of its limitations. Applicants therefore believe that claim 32 is also patentable over Bonomi and request reconsideration and allowance of claims 31-32.

Rejections under section 103

Claim 1

Claim 1 recites, in part, "assembling one or more data units from data traffic of ready network connections that are not detected as debit connections...transmitting the chosen data unit to the output channel...wherein after the chosen data unit is transmitted the first connection becomes a debit connection if credit required to transmit the chosen data unit exceeds the credit of the first connection." Applicants submit that the cited references, alone or in combination, do not teach or suggest at least this debit-connection feature.

As discussed above, Bonomi does not disclose a credit-based system of bandwidth allocation. Specifically, Bonomi does not teach or suggest that credits are allocated to network connections or that the credit of a network connection is adjusted based upon the data unit transmitted. In short, a debit connection feature simply has no place in Bonomi's time-based scheduler.

Klausmeier indicates that rate control may be implemented in a system where each connection accumulates credits at a rate that is proportional to its service rate. See, Klausmeier at col. 3, lines 35-40. However, Klausmeier explicitly teaches away from this a per-connection approach stating that "in the rate control scheme of the present invention, a credit balance c_j is maintained for each connection group instead of maintaining a credit balance for

each connection." See, Klausmeier at col. 5, lines 33-35. It is therefore respectfully submitted that Klausmeier does not teach or suggest "allocating credits to ready network connections in the plurality of network connections" or "adjusting the credit of the first connection based upon the data unit transmitted" as claimed.

Additionally, Klausmeier does not disclose a debit connection feature. There is no teaching or suggestion of debit connections or distinguishing such connections from non-debit connections. Klausmeier does not contemplate that a network connection (or a group of network connections) could exceed its available credit balance. See e.g., Klausmeier at Fig. 3. Thus, neither Klausmeier nor Bonomi discloses "assembling one or more data units from data traffic of ready network connections that are not detected as debit connections... adjusting the credit of the first connection based upon the data unit transmitted, wherein after the chosen data unit is transmitted the first connection becomes a debit connection if credit required to transmit the chosen data unit exceeds the credit of the first connection."

Claims 2-8, 33

Claims 2-8 and 33 depend from claim 1 and incorporate all of its limitations. Accordingly, Applicants submit that these claims are also allowable over the combination of Bonomi and Klausmeier for at least the reasons identified above. Reconsideration and allowance of claims 1-8 and 33 is respectfully requested.

Claim 11

Claim 11 recites limitations similar to those of claim 1 and is rejected under the same rationale. Applicants respectfully submit that claim 11 is also patentable over the cited references as previously discussed.

Claims 12-18, 34

Claims 12-18 and 34 depend from claim 11 and incorporate all of its limitations. Accordingly, Applicants believe that these claims are allowable over the combination of Bonomi and Klausmeier. Reconsideration and allowance of claims 11-18 and 34 is respectfully requested.

Claim 21

Claim 21 recites limitations similar to those of claim 1 and is rejected under the same rationale. Applicants respectfully submit that claim 21 is also patentable over the cited references as previously discussed.

Claims 22-28, 35

Claims 22-28 and 35 depend from claim 21 and incorporate all of its limitations. Accordingly, Applicants submit that these claims are also allowable over the combination of Bonomi and Klausmeier. Reconsideration and allowance of claims 21-28 and 35 is respectfully requested.

Claims 10, 20, 30

Claims 10, 20, and 30 are rejected over Bonomi and Klausmeier in view of Radhakrishanan. Radhakrishanan does not cure the deficiencies of Bonomi and Klausmeier as discussed above. Specifically, Radhakrishanan does not disclose the claimed credit-based bandwidth allocation nor does Radhakrishanan disclose a debit-connection feature. Accordingly, Applicants request reconsideration and allowance of claims 10, 20, and 30.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

Steven Raney
Reg. No. 58,317

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400 Fax: 415-576-0300
SAR:djb
60831082 v1